



FiberFlex™ to bring potable water to workers in a remote location where harsh conditions and changing water quality is common

**APPLICATION:** Drinking Water

**CAPACITY:** 2,960 m<sup>3</sup>/d (0.8 MGD or 2.9 MLD)

**LOCATION:** Oil Sands, Alberta, Canada

**COMMISSIONED:** Winter 2018

### CHALLENGE

A confidential Oil & Gas customer required potable water for their operations at a site located in Alberta's Oil Sands. Raw water was to be pumped from the Athabasca River to the customer's raw water pond and from there a stand alone, turn-key, treatment facility was to be erected, providing 2,960 m<sup>3</sup>/day of drinking water. The Athabasca River is known to be a flashy water source, with TOC greater than 14 mg/L and raw water turbidity spikes greater than 400 NTU typically following heavy precipitation events in the Fall as well as during the snow melt conditions in the Spring.

To minimize construction activity in this Northern Climate and to accelerate commissioning and start-up activities, the water treatment plant structure was to be pre-engineered and pre-assembled, complete with all unit treatment processes installed, plumbed and wired prior to shipping the building to the job site.

### SOLUTION

H2O Innovation delivered its state-of-the-art treatment solution including flocculation, clarification and ultrafiltration for the production of potable water. Raw water is pumped from the Athabasca River where flow is then delivered to a new 33,000 gallon raw water storage tank located adjacent the new treatment building measuring 110 feet long by 22 feet wide.

As water enters the building, it undergoes chemical pretreatment including pH adjustment, coagulant addition as well as provisional potassium permanganate. Flow is then directed to a combined three-stage flocculator completed with lamella plate clarifier. Clarified water is then pumped through automatic strainers and then feeds the 2 x 100% UF trains. The filtered water is then stored in a new 33,000 gallon treated water storage tank. Filtered water is pulled from the treated water storage tank, injected with chloramines and then pumped to distribution. Other ancillary equipment includes aeration blowers, backwash equipment, CIP systems, chemical feed skids and compressed air equipment.

Given the challenging and highly variable feed water conditions, H2O Innovation supplied its Clearlogx™ package to optimize the pretreatment process and provide the operators a user-friendly, hands-off coagulation control tool.



Construction of the building for Oil & Gas Client



## BUILT WITH FIBERFLEX™

The FiberFlex™ system supplied for this confidential Oil & Gas customer is designed to fit several different modules from various membrane manufacturers. This gives the Owner ultimate flexibility and negotiating power in the future when the time comes for membrane replacement.

The skidded UF membrane racks and control systems were fully factory assembled and tested at H2O Innovation's manufacturing facility and then the equipment was shipped to Calgary where the skids were installed in a pre-engineered building using H2O Innovation's own forces. After the equipment was installed and interconnecting pipework and wiring completed, the system was functionally tested. The building structure was then hoisted onto flatbed movers and the completed treatment system was shipped some 800 kilometers north to Alberta's oil sands.



## RESULTS

The FiberFlex™ UF membrane system was commissioned in Winter 2018 and performance tested in May 2018. Since then has provided superior filtered water quality that meets and exceeds the most stringent regulatory requirements. All sequences are fully automatic for easy operation.



Equipment inside the building

